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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,726	09/19/2005	Gilles L. DeLisle	GILLESPECT2US	1372
20115	7590	10/15/2007	EXAMINER	
MARK CLODFELTER			CHIESA, RICHARD L	
555 SPARKMAN DRIVE				
SUITE 1602D				
HUNTSVILLE, AL 35816			ART UNIT	PAPER NUMBER
			1797	
MAIL DATE		DELIVERY MODE		
10/15/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/549,726	DELISLE, GILLES L.
	Examiner	Art Unit
	Richard L. Chiesa	1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on September 19, 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-30 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 September 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                             |                                                                   |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | Paper No(s)/Mail Date. _____.                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|                                                                                                             | 6) <input type="checkbox"/> Other: _____.                         |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The preliminary amendment filed on September 19, 2005 has been entered.

### ***Drawings***

2. The drawings filed on September 19, 2005 are accepted by the examiner.

### ***Specification***

3. The specification is objected to because the reference numeral “38” on line 24 of page 24 should apparently be changed to --238--. Correction and/or clarification is required.

### ***Claim Rejections - 35 USC § 112***

4. Claims 2-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, the reasons for this rejection are: (A) The expressions “or so” on the last line of claim 2 are ambiguous and should apparently be simply deleted. (B) The capitalized word “DEVICE” on the last line of claim 10 is somewhat confusing and should apparently be changed to --device--.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,336,017 to Kopa in view of U.S. Patent No. 3,393,984 to Wisman. Kopa (note Figures 1-5) discloses a fuel delivery system with a fuel metering device 66, fuel source 70, induction air source 74, heated fog producing device 46, 84, and internal combustion engine 10 which delivers fuel and air in close stoichiometric relationship (note col. 3, line 26 to col. 8, line 42) substantially as claimed. It would appear that Kopa may not explicitly state that the fuel is processed into a "fog" of fuel droplets of predetermined size. However, Kopa does mention repeatedly that a fine atomization of the fuel is achieved. In any case, Wisman teaches the well-known use of a fog producing device in a fuel delivery system creating fuel droplets of about 25.4 microns in size for the purpose of ensuring maximum fuel-air mixing (note ref. num. 17, 18, 41, 48, Figures 1-3, and col. 1, lines 10-71). Consequently, it would have been obvious to one having ordinary skill in the art to employ a fog producing device creating fuel droplets of a predetermined size in the Kopa fuel delivery system in order to facilitate the intermingling of fuel and air as taught by Wisman.

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7. Claims 5, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claims 3 and 13, respectively above, and further in view of U.S. Patent No. 1,885,559 to Smith. The prior art, as described above in paragraph 6, discloses a fuel delivery system substantially as claimed with the possible exception of a fog producing tube having a plurality of turbulence inducing elements. Smith (note Figures 1-7) teaches the use of a fog producing tube 1, 26 with a plurality of turbulence inducing elements 14-18 in a fuel delivery system for the purpose of ensuring an efficient mixing action (note first page, lines 4-22). Therefore, it would have been obvious to one having ordinary skill in the art to employ a fog producing tube with a plurality of turbulence inducing elements in the Kopa and Wisman fuel delivery system in order to facilitate optimum mixing as taught by Smith.

8. Claims 6-9, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claims 5 and 17 respectively above, and further in view of Great Britain Patent No. 2,083,554 to Dourass. The prior art, as described above in paragraph 7, discloses a fuel delivery system substantially as claimed with the possible exception of a turbulence inducing element having a disc with an opening and slits. However, Dourass (note Figures 1-5) teaches the use of a turbulence inducing element having a disc 2 with an opening 5 and slits 11 in a fuel delivery system for the purpose of enhancing a swirling effect (note page 1, lines 23-54) and for this same reason it would have been obvious to one of ordinary skill in the art to employ such an expedient in the prior art fuel delivery system.

9. Claims 10 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claims 6 and 14 respectively above, and further in view of U.S. Patent No. 4,399,794 to Gagnon. The prior art, as described above in paragraphs 6 and 8, discloses a fuel delivery system substantially as claimed with the possible exception of a heater flashing the liquid fuel into droplets. However, Gagnon (note ref. num. 27, 32, Figure 1, and col. 1, line 44 to col. 2, line 23) teaches the use of a heater flashing the fuel droplets into vapor in a fuel delivery system for the purpose of increasing volumetric efficiency while reducing pollution (note col. 1, lines 14-18) and for this same reason it would have been obvious to one of ordinary skill in the art to employ such an expedient in either one of the prior art fuel delivery systems.

10. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claims 1 and 13 above, and further in view of International Publication No. WO 97/48897 to Omarsson. The prior art, as described above in paragraph 6, discloses a fuel delivery system substantially as claimed. However, it would appear that the prior art may not explicitly disclose an engine controller. In any case, Omarsson (note ref. num. 153, Figure 4) teaches the well-known use of an engine controller in a fuel delivery system for the purpose of ensuring proper disintegration of fuel droplets (note page 6, lines 10-24). Consequently, it would have been readily obvious to one having ordinary skill in the art to employ an engine controller in the Kopa and Wisman fuel delivery system in order to facilitate the disintegration of the fuel droplets as taught by Omarsson.

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11. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claim 25 in paragraph 10 above, and further in view of U.S. Patent No. 1,885,559 to Smith for the same reasons explained above in paragraph 7.

12. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art as applied to claim 27 in paragraph 11 above, and further in view of U.S. Patent No. 4,399,794 to Gagnon for the same reasons explained above in paragraph 9.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references have been cited as art of interest to show other fuel delivery systems and/or gas-liquid mixing devices.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard L. Chiesa whose telephone number is (571) 272-1154.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane S. Smith, can be reached at (571) 272-1166.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1700 receptionist whose telephone number is (571) 272-1700.

Facsimile correspondence must be transmitted through (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Richard L. Chiesa

October 11, 2007

*Richard L. Chiesa*

RICHARD L. CHIESA  
PRIMARY EXAMINER  
ART UNIT 1797

*Oct. 11, 2007*